

CLAIMS

**What is claimed is:**

1. An amorphous iron-based alloy having a composition consisting essentially of about 5 70-87 atom percent iron, up to about 20 atom percent of the iron being replaced by cobalt and up to about 3 atom percent of the iron being replaced by nickel, manganese, vanadium, titanium or molybdenum, the balance of elements present comprising a member selected from the group consisting of boron, silicon and carbon, said alloy being heat-treated to induce a linear BH characteristic and low 10 magnetic loss.
2. A heat-treated amorphous iron-based alloy as recited by claim 1, having a saturation magnetic induction exceeding about 10 kG ,or 1 Tesla;
3. An amorphous iron-based alloy as recited by claim 1, said alloy having the form of a strip having a predetermined easy magnetization direction and having been heat-treated in a magnetic field, the magnitude of said magnetic field ranging from about 15 50 Oe (4,000 A/m) to about 2,000 Oe (160,000 A/m), and said field having been applied perpendicular to the predetermined easy magnetization direction of said strip.
4. An amorphous iron-based alloy as recited by claim 1, said alloy having been heat-treated at a temperature near the Curie temperature of the alloy.
- 20 5. An amorphous iron-based alloy as recited by claim 4, said alloy having been heat-treated at a temperature high enough to allow atomic diffusion or rearrangement of its constituents.

6. An amorphous iron-based alloy having a composition consisting essentially of about 70-87 atom percent iron, up to about 20 atom percent of the iron being replaced by cobalt and up to about 3 atom percent of the iron being replaced by nickel, manganese, vanadium, titanium or molybdenum, the balance of elements present comprising a member selected from the group consisting of boron, silicon and carbon, said alloy being heat-treated in the presence of a magnetic field to induce a linear BH characteristic and low magnetic loss.
- 5
7. A heat-treated amorphous iron-based alloy as recited by claim 6, having a saturation magnetic induction exceeding about 10 kG ,or 1 Tesla;
- 10 8. An amorphous iron-based alloy as recited by claim 6, said alloy having the form of a strip having a predetermined easy magnetization direction and said magnetic field having a magnitude ranging from about 50 Oe (4,000 A/m) to about 2,000 Oe (160,000 A/m), and having been applied perpendicular to the predetermined easy magnetization direction of said strip.
- 15 9. An amorphous iron-based alloy as recited by claim 6, said alloy having been heat-treated at a temperature near the Curie temperature of the alloy.
10. An amorphous iron-based alloy as recited by claim 9, said alloy having been heat-treated at a temperature high enough to allow atomic diffusion or rearrangement of its constituents.